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Review Article

Nutritive Values, Preliminary Phytochemical and Physiochemical Screening of Plant Leaves of *Epiphyllum oxypetalum*

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ABSTRACT

Epiphyllum oxypetalum Haw. (Family-Cactaceae) is a unique plant with several traditional medicinal uses. The plant has been used to treat bloody phlegm and cough, uterine bleeding and shortness of breath. Previous reports on this plant has demonstrated significant pharmacological and biological effects such as anti-inflammatory, antioxidant and antimicrobial activities. *Epiphyllum oxypetalum* (DC.) Hawthorn leaves extract prepared in methanol solution. The analysis outcomes positive for carbohydrate, phenol, glycosides, flavonoids, alkaloids, tannins, saponins and negative ends up in protein, reducing sugar, terpenoids, Etc.

INTRODUCTION

The use of plants for medicinal purposes dates back to earlier recorded human history. Traditional medicines chiefly containing medicinal plants have always played a vital role as important alternatives to conventional medicines in developing countries. The use of medicinal plants or their products is more popular especially among the poor communities that inhabit rural areas and lack access to health. Alternatively, there has been an enormous increase in the demand of medicinal plants across the globe for their chemical diversity

and for the production of newer therapeutic moieties to control various diseases. In spite of tremendous advancement made in the discovery of new synthetic drugs, medicinal plants have still retained their therapy in the literature. Therefore, research on medicinal plants always remained a potential area of investigation.

In India it is treated as a sacred plant known by the name Brahma Kamal, which is, in fact, a false Brahma Kamal (Dandekar et al., 2015) [5] The botanical name of the true Brahma Kamal is *Saussurea obvallata* (DC.) Edgew. and is an

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inhabitant of the Himalayas in India. *E. oxypetalum* belongs to Cactaceae and *S. obvallata* belongs to Asteraceae family.

Phytochemicals are biologically active, gift chemical compounds found in plants, that defend plant cells from environmental hazards resembling pollution, stress, drought, actinic radiation exposure and unhealthy attack. secondary plant metabolites, that offer health benefits to humans. they're thought to act as combining agents, permitting nutrients to be used extra efficiently by the body. variety of the useful roles of phytochemicals are low toxicity, low cost, easy convenience and their biological properties similar to substance activities, antimicrobial effects, modulation of detoxification enzymes, stimulation of the immune system, decrease of protoplasm aggregation and modulation of endocrine metabolism and antineoplastic properties.

Table 1: Taxonomy of *Epiphyllum Oxypetalum*

Kingdom	Plantae
Sub Kingdom	Tracheobionta
Superdivison	Spermatophyta
Divison	Magnoliophyta
Class	Magnoliopsida
Order	Caryophyllales
Family	Cactaceae
Genus	<i>Epiphyllum</i>
Species	<i>E. oxypetalum</i>
Binomial name	<i>Epiphyllum oxypetalum</i> Haworth

The extract of *Rhododendron setosum* and the essential oil of *Eucalyptus globulus* were most effective against *Escherichia coli*, *Staphylococcus aureus* respectively and the extracts of *Azadiracta indica* and *Elsholtzia fruticosa* were most effective against *Klebsiella* species 15. The antibacterial activity of the leaves of *Annona muricata* extracts by agar cup method against eight bacterial species showed antibacterial activity; these promissory extracts open the possibility of

finding new clinically effective antibacterial compounds¹⁶. In recent years development of multidrug resistance in the pathogenic bacteria and parasites has created major clinical problems in the treatment of infectious diseases. The present investigation clearly reveals the antibacterial nature of this plant and suggests that this plant could be exploited in the management of diseases caused by these bacteria in human systems

MATERIALS AND METHODS

Plant material (*Epiphyllum oxypetalum*)

The leaves of *Epiphyllum oxypetalum* were collected from in and around the city of Bangalore, India in December 2011. The plant was authenticated by Department of Botany, Indian Institute of Science



Chemicals and Instruments

All the chemicals and reagents used for the experiments were analytical grade.

Preparation of solvent extracts for phytochemical analysis

The leaves were shade dried at room temperature. The dried leaves were subjected to size reduction to a coarse powder with the help of a blender. 25g of powder was filled in thimble and extracted

successively with 100 ml petroleum ether, acetone and ethanol Methanol chloroform using maceration method 24 hrs at a below temperature the boiling point of the solvent. All the extracts were concentrated using.

Sr. No.	Solvent	% of Yield
1	Petroleum ether	3.51
2	Ethanol	6.702
3	Methanol	7.200
4	Acetone	4.75



Preliminary phytochemical analysis

Preliminary phytochemical analysis was carried to identify the presence of alkaloids, flavonoids, saponins, tannins, glycosides (Keller- Killani test), terpenoids (Salkowski test), tannins', reducing sugars, proteins and amino acids (Ninhydrin test), phytosterols (Libermann Burchard's test), Phenolic compounds (ferric chloride test), resins and acidic Compounds.

Qualitative analysis.

Test for Carbohydrate

To 2ml of test solution, add 2 drops of Molish reagent. The solution is the poured slowly in to a test tube containing 2ml of conc. Sulphuric acid to

form two layers of colour indication. The formation of brick red precipitate at the interface of the two layers indicates the presence of carbohydrate or reducing sugars.

Test for Proteins

It is used to determine the presence of peptide bonds in protein. To 3ml of test sample add 3% of NaOH and 1% of CuSO₄. The solution turns from blue to violet (purple) or to pink. This indicates the presence of protein.

Test of Phenols

To 2ml of test sample solution, added few drops of ferric chloride is added. The formation of blue, violet, purple, green, red colour upon addition indicates the presence of phenol.

Test for reducing Sugars

To 0.5ml of extract add 1ml water and 5-8 drops of Fehling's solution. were added at hot. The observation of brick red precipitate indicates the presence of reducing sugar

Test for Glycosides

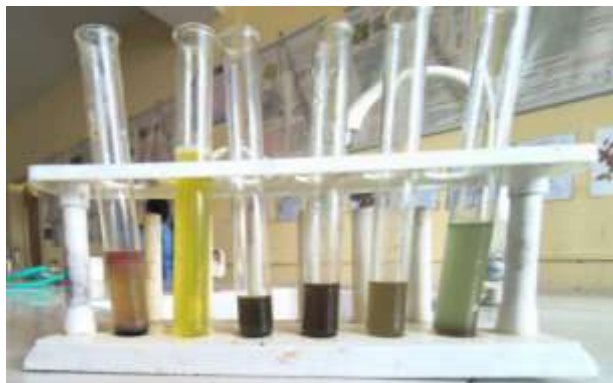
To the solution of the extract add glacial acetic acid, few drops 5% ferric chloride and conc. Sulphuric acid are added and observed for a reddish-brown coloration at the junction of two layers and bluish green colour in the upper layers which indicates the presence of glycosides

Test for Flavonoids

To 2ml of extract add few drops of 1% ammonia solution. A yellow colouration was observed for the presence of flavonoids.

Test for Alkaloids

To 0.5 grams of each extract add 5ml of 1% aqueous HCl and kept in water bath, 1ml of the filtrate is to be treated with Mayer's reagent. Formation of yellow coloured precipitate indicates the presence of alkaloids.



RESULT AND DISCUSSION.

Phytochemical studies

Phytochemical evaluation of the leaf extract offers a well-known idea concerning the character of chemical parts found in it. The plant extract prepared in the methanol extract. Preliminary screening of the sample shows presence of carbohydrate, phenol, glycosides, flavonoids, alkaloids, tannins, saponins and absence of proteins, reducing sugar, terpenoids. The results are summarised in the Table 1. Since reducing sugars are absent plant leaf part can be used as supplement to diabetic patients

Table: 1 Qualitative analysis of phytochemical present in methanol leaf extract of selected sample

Sr. No.	Phytochemicals	Inference of the leaf extract in methanol
1	Carbohydrate	+
2	Protein	-
3	Phenol	+
4	Reducing sugar	-
5	Glycosides	+
6	Flavonoids	+
7	Alkaloids	+
8	Tannins	+
9	Saponins	+
10	Terpenoids	-

Physio-chemical analysis

Physio-chemical analysis was carried out and the results were summarized in Table-2. The quantitative analysis of the sample is studied. Moisture content, total ash content, and secondary metabolites are summarized in the Table 2. The leaves extract shows maximum values in polyphenol and saponins content. The analysis shows 1.517% of moisture content, 2.171% total ash value, 1.043% of alkaloids, 1.113% of tannin content, 3.042% of polyphenol, 0.84% of glycosides, 2% of saponins and 1.15% flavonoid. The results are depicted in Table 2

Table 2: Physiochemical analysis of phytochemical present in the selected sample

Sr no	Quantitative test	Values
1	Moisture content	1.40%
2	Total ash value	1.171%
3	Alkaloid content	1.012%
4	Tannin content	1.14%
5	Glycoside content	0.824%
6	Flavonoid content	1.123%

CONCLUSION

In this present study, polyphenol is seen in greater amount compared to others. Research shows polyphenols can facilitate manage vital sign levels and keep your blood vessels healthy and flexible, promoting good circulation. They conjointly help scale back chronic inflammation, another risk issue for heart disease. Polyphenols can reduce and help management your glucose levels. This implies that the *E. oxypetalum* leaf extract have therapeutic value. Present investigation revealed that *Epiphyllum oxypetalum* leaves Could be a very useful resource as a biotherapeutic agent. As its leaf Extracts possess good nutritive values and a broad spectrum of activity Against pathogenic bacteria, its expended use as dried/dehydrated Extracts and its blends could be worth exploiting from economic point Of view. These efforts could open up the possibility of finding new Clinically

effective bio therapeutic agents. This indeed is a step towards Its sustainable use and justifying its abundance. Attempts are also Being made to screen the leaf fibbers as prebiotic agents.

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